Review on Matrix Thermal Absorber Designs for Solar Air Collector

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ABSTRACT

Solar thermal absorber is the main component of solar air collector. It absorbs solar radiation and converting energy received to thermal energy and transferring the energy by means of convection to working fluid, producing elevated air temperature output. Among thermal absorber used in solar air collector applications, permeable matrix thermal absorber is one of the promising thermal absorbers that delivers high thermal efficiency. Absorber topology, flow routing and materials contribute a significant portion towards thermal performance and overall thermal efficiency of collector and many research are being actively done in these areas. This review shall focus on the advances of topology designs, enhancement methods, thermal performance and absorber materials currently available for matrix type of solar air collector. Essential attributes influencing thermal performance of solar air collector with matrix absorber are also highlighted in this article.

KEYWORDS: Solar air collector; Solar matrix absorber

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